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SBIR targets the entrepreneurial sector because that is where most innovation and innovators thrive. However, the risk and expense of conducting serious R&D efforts are often beyond the means of many small businesses. By reserving a specific percentage of federal R&D funds for small business, SBIR protects the small business and enables it to compete on the same level as larger businesses. SBIR funds the critical startup and development stages and it encourages the commercialization of the technology, product, or service, which, in turn, stimulates the U.S. economy.
The following are the award recipients for FY 2002:

1. **BellBrook Labs, LLC**
Type of Award: Phase 2 SBIR
Amount: $ 708,643
Accepting Award: Bob Lowery, President
Federal Agency: NIH
Principal Investigator: Bob Lowery

Project Title: High Throughput Assays for Drug Glucuronidation

Project Description: When drugs are taken into the body, they are modified by proteins with notoriously difficult names. Among these are the UDP-glucuronosyltransferases, called UGTs for short. Modification of drugs by UGTs affects their therapeutic properties and their toxic side effects, so understanding how these proteins work is an important goal for pharmaceutical scientists. The UGT assay technology that BellBrook Labs is developing will accelerate this process.

2. **BioInnovation LLC**
Type of Award: Phase 1 SBIR
Amount: $ 99,144
Accepting Award: Vinod B. Shidham, MD, Associate Professor
Federal Agency: NIH
Principal Investigator: Vinod B. Shidham, MD,FIAC,MRCPath

Project Title: Fine Needle Aspiration Biopsy (FNAB) Needle Device

Project Description: Fine Needle Aspiration Biopsies (FNAB) are widely performed due to their minimally invasive nature, low cost, and rapid turn around time for the diagnosis of various mass lesions such as cancer and infection. Currently adapted hypodermic needles used for performing FNAB have many limitations including low reproducibility and scant sampling. A needle device that can overcome these limitations is desired. The present device is designed for a significantly higher and reproducible yield of diagnostic material even with minimum technical skill. This research facilitated designing of the prototype and preparation of additional working models of this novel system for functional evaluation.

3. **BioPulping International**
Type of Award: Phase 2 SBIR
Amount: $ 295,619
Accepting Award: Masood Akhtar, CEO
Federal Agency: USDA
Principal Investigator: Masood Akhtar

Project Title: Novel Cost-Effective Production of High Quality Papers

Project Description: Wisconsin is #1 paper producing state in the nation. The industry is very electrical energy-intensive and is polluting. The funded research will focus on the efficacy of combining two energy-efficient and environmentally friendly technologies for producing paper cost effectively. These new technologies (biopulping and fiber loading) have been developed at the Forest Products Laboratory in Madison, Wisconsin.

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4. **BioPulping International**
Type of Award: Phase 1 Other Federa R&D
Amount: $ 525,000
Accepting Award: Masood Akhtar, CEO
Federal Agency: U.S. DOE
Principal Investigator: Masood Akhtar

Project Title: First commercial scale demonstration of biopulping: A new energy-efficient and environmentally-benign

Project Description: Wisconsin is #1 paper producing state in the nation. The industry is very electrical energy-intensive and is polluting. The funded research will focus on the first commercial scale demonstration of biopulping: An energy-efficient and environmentally friendly technology for producing paper cost effectively. Biopulping is defined as the treatment of wood chips with a "natural" wood decay fungus prior to pulping. This new technology has been developed at the Forest Products Laboratory in Madison, Wisconsin.

5. **CapsiGen**
Type of Award: Phase 1 SBIR
Amount: $ 18,500
Accepting Award: James Mooney, Founder and Plant Geneticist
Federal Agency: USDA
Principal Investigator: James Mooney, Ph.D.

Project Title: Chile Pepper Production and Processing in the Midwest

Project Description: The purpose of this research was to determine the feasibility of growing proprietary chile pepper F1 hybrids for production and processing in the Midwest. Chile is a warm-season crop and generally requires a long, frost-free season to produce high yields of quality peppers. Midwest farmers have not been major competitors in the growing chile pepper market due to the lack of varieties suited to the shorter growing season. This research identified six highly productive selections for Midwest production and processing. It is feasible to consider growing these selections in the Midwest on a scale that is competitive with major production states such as New Mexico and California.

6. **CompuTherm, LLC**
Type of Award: Phase 2 SBIR
Amount: $ 748,325
Accepting Award: Fan Zhang, Materials Scientist
Federal Agency: US. Air Force
Principal Investigator: Fan Zhang

Project Title: Thermodynamic Databases: Critical Tools for Developing and Processing High Performance Materials

Project Description: Improvement of the modern turbine engine requires development of better materials that are more durable under the harsh conditions of high temperature and cyclic stress. Traditional development cycles for new turbine engine can last more than 10 years due to the difficulty of finding an alloy chemistry that provides the desired mechanical properties and material stability. The best way to accelerate the development of new materials is to do thermodynamic calculations, which provide a blueprint for alloy development and process optimization.Thermodynamic databases are critically needed to carry out such calculations. Successful completion of the proposed databases will provide the U. S. Air Force, aerospace, automobile and related industries with valuable tools for developing new materials and optimizing processing conditions.

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7. **EraGen Biosciences**
Type of Award: Phase 1 SBIR
Amount: $ 105,250
Accepting Award: James Prudent, Chief Scientific Officer
Federal Agency: NIH-NIAD
Principal Investigator: James Prudent

Project Title: Rapid Turn-around Testing for Bioterrorism Agents

Project Description: Developing a detection method for biological agents used in bioterrorism will allow preparation and defense against such agents as anthrax, small pox and plague. In addition, work in this area lays the foundation for testing future novel organisms that may be created.

8. **EraGen Biosciences**
Type of Award: Phase 2 STTR
Amount: $ 500,000
Accepting Award: James Prudent, Chief Scientific Officer
Federal Agency: DHHS
Principal Investigator: Steven A. Benner

Project Title: An Expanded Genetic Information System

Project Description: The development of four unique new base pairs used in DNA analysis has allowed researchers at Eragen to create an entire portfolio of novel genetic diagnostics and genotyping systems.

9. **Gammex RMI**
Type of Award: Phase 1 STTR
Amount: $ 99,950
Accepting Award: Dr. Charles Lescrenier, President
Federal Agency: DHHS - National Institutes of Health
Principal Investigator: Dr. Steven Don, MD

Project Title: Neonatal Chest Phantom for Computed Radiography Testing

Project Description: We are developing the first in a new class of test devices for digital x-ray imaging systems. This first product will test the total system function of a pediatric computed radiography system using an anatomically realistic image combined with automated analysis software. It can be used in quality assurance programs, as a design tool for equipment suppliers, and as a research tool. The primary benefit of this first device is to help ensure that x-ray images of newborns are made with minimal x-ray exposure and optimal image quality.

10. **Healthcare Technology Systems, Inc**
Type of Award: Phase 2 SBIR
Amount: $ 1,255,455
Accepting Award: James C. Mundt, Research Scientist.
Federal Agency: NIA
Principal Investigator: John H. Greist, MD

Project Title: Facilitating Dementia Screening, Education, and Referral

Project Description: Two interactive voice response telephone systems were developed. The first system is designed to assess cognitive decline in the elderly associated with early stage Alzheimer's disease. This system may provide more reliable and convenient measures of treatment effectiveness in future clinical trials, and assist physician monitoring of patients. The second system will provide toll-free education and screening for early detection of Alzheimer's disease and other dementias, and will provide support to caregivers.

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11. **Imago Scientific Instruments Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 100,000
Accepting Award: Steven L. Goodman, PhD
Federal Agency: NIH
Principal Investigator: Steven L. Goodman

Project Title: High Resolution Elemental Microscopy with the Atom Probe

Project Description: This award is to develop and commercialize Imago's 3-D atomic imaging atom probe microscope, the LEAP, so that it may be applied to determine the structure of proteins and other biological molecules in order to advance biomedical science and structural biology.

12. **JunTech, Inc.**
Type of Award: Phase 2 SBIR
Amount: $ 500,000
Accepting Award: Jun Zhang, Dr.
Federal Agency: National Science Foundation
Principal Investigator: Jun Zhang

Project Title: A new digital surveillance video system

Project Description: In this project we develop new techniques for the compression, transmission, search/retrieval, and analysis of surveillance video. The results of the project will contribute to the fight against crime and terrorism.

13. **Lucigen Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 100,000
Accepting Award: David Mead, Ph.D., President
Federal Agency: DOE
Principal Investigator: David Mead

Project Title: Single Cell Genomics of Hyperthermophiles

Project Description: This project will enable the sequence analysis of cultivation-resistant microorganisms by constructing genomic libraries from single cell isolates. Single Cell Genomics will increase by approximately 500 fold the number of microorganisms that can be studied by modern molecular methods, unleasing a flood of new discoveries, economically valuable molecules, and life-saving medicines.

14. **Lucigen Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 100,000
Accepting Award: Ronald Godiska, Senior Scientist
Federal Agency: NIH
Principal Investigator: David Mead

Project Title: Accelerated BAC Library Construction and Analysis

Project Description: Bacterial Artificial Chromosomes (BACs) allow biotech researchers to clone very large regions of foreign DNA into bacteria. Creating an extensive library of BACs is essential for obtaining the sequence of complex genomes, such as that of humans and many other species. The BAC vectors being developed by Lucigen allow quicker and more efficient purification of the DNA being studied, with less contamination by bacterial and vector DNA. Lucigen's is also developing simple yet powerful methods of shearing genomic DNA into sizes suitable for BAC cloning. These vectors will improve the speed and efficiency of genomic sequencing.

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15. **Lucigen Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 99,510
Accepting Award: Thomas Schoenfeld, Vice President
Federal Agency: NHGRI
Principal Investigator: Thomas Schoenfeld

Project Title: Improved DNA Polymerases for Genomic Sequencing

Project Description: This is a program to improve the ability to analyze the genetic composition of humans and any other life form. All the common methods for reading the genetic code use enzymes (DNA polymerases). Limitations in these enzymes hamper analysis. This project is aimed at identifying and producing improved enzymes for this use.

16. **Lucigen Corporation**
Type of Award: Phase 2 SBIR
Amount: $ 499,373
Accepting Award: Thomas Schoenfeld, Vice President
Federal Agency: NSF
Principal Investigator: Thomas Schoenfeld

Project Title: Improved Thermostable DNA Polymerases for Genomics Research

Project Description: This is a program to improve the ability to detect and analyze DNA. All the common methods for detecting and analyzing very low amounts of DNA use enzymes (DNA polymerases). Improvements in these enzymes promise to benfit medicine, biomedical research, public health, agriculture and environmental sciences. This project is aimed at identifying and producing improved enzymes for these uses.

17. **Micro Optics Technologies, Inc.**
Type of Award: Phase 1 SBIR
Amount: $ 99,788
Accepting Award: Dr. Jeffrey C. Buchholz, President
Federal Agency: Navy
Principal Investigator: Jeffrey C. Buchholz

Project Title: Optically Driven Earplug

Project Description: Advanced military aircraft create hazardous noise levels for deck and ground crew personal working in their environment. This project is developing advanced earplugs for use under passive noise damping earmuffs that add active noise cancellation in the ear canal and improved two-way communication to the crew member. The earplug is made wireless using optical technologies to remove any connecting wires that hamper electric earplug usage while providing for a wireless link in a high electromagnetic noise environment. The earplug will become part of a hearing protection and communication system for aircraft deck and ground crews.

18. **Mirus Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 100,000
Accepting Award: Hans Herweijer, Ph.D
Federal Agency: NIH/NIDDK
Principal Investigator: Christine I. Wooddell, Ph.D.

Project Title: Development of gene expression vectors that can integrate into the genome to enable long term expression for gene therapy purposes.

Project Description: Development of gene expression vectors that can integrate into the genome to enable long term expression for gene therapy purposes.

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19. **Mirus Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 105,415
Accepting Award: Hans Herweijer, Ph.D
Federal Agency: NIH/NIDDK
Principal Investigator: Vladimir M. Subbotin, M.D., Ph.D.

Project Title: Non-viral gene therapy methods via the bile duct for the treatment of liver cirrhosis

Project Description: Non-viral gene therapy methods via the bile duct for the treatment of liver cirrhosis.

20. **Mirus Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 111,188
Accepting Award: Hans Herweijer, Ph.D
Federal Agency: NIH/NIDDK
Principal Investigator: David L. Lewis, Ph.D.

Project Title: Methods for the delivery of antisense oligonucleotides to the liver.

Project Description: Methods for the delivery of antisense oligonucleotides to the liver.

21. **Mirus Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 104,437
Accepting Award: Hans Herweijer, Ph.D
Federal Agency: NIH/NHLBI
Principal Investigator: Hans Herweijer, Ph.D.

Project Title: Development of plasmid DNA vectors for expression of high, sustained levels of factor VIII clotting

Project Description: Development of plasmid DNA vectors for expression of high, sustained levels of factor VIII clotting factor to be used for gene therapy of hemophilia A.

22. **Mirus Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 102,949
Accepting Award: Hans Herweijer, Ph.D
Federal Agency: NIH/NIDDK
Principal Investigator: David L. Lewis, Ph.D.

Project Title: Methods of gene transfer to skeletal muscle for the treatment of severe anemia.

Project Description: Methods of gene transfer to skeletal muscle for the treatment of severe anemia.

23. **Mirus Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 109,091
Accepting Award: Hans Herweijer, Ph.D
Federal Agency: NIH/NIAID
Principal Investigator: Hans Herweijer, Ph.D.

Project Title: Novel methods for the generation of antibodies via genetic immunization.

Project Description: Novel methods for the generation of antibodies via genetic immunization.

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24. **Mirus Corporation** — **Accepting Award:** Hans Herweijer, Ph.D
Type of Award: Phase 2 SBIR — **Federal Agency:** NIH/NCI
Amount: $ 716,393 — **Principal Investigator:** Magdi Sebestyen, Ph.D.

Project Title: Development of methods for transport of DNA into the nucleus after gene transfer.

Project Description: Development of methods for transport of DNA into the nucleus after gene transfer.

25. **Mirus Corporation** — **Accepting Award:** Hans Herweijer, Ph.D
Type of Award: Phase 1 SBIR — **Federal Agency:** NIH/NCI
Amount: $ 110,425 — **Principal Investigator:** David L. Lewis, Ph.D.

Project Title: Investigation of signaling pathways using RNA interference

Project Description: Investigation of signaling pathways using RNA interference.

26. **Mirus Corporation** — **Accepting Award:** Hans Herweijer, Ph.D
Type of Award: Phase 1 SBIR — **Federal Agency:** NIH/NHLBI
Amount: $ 115,981 — **Principal Investigator:** Hans Herweijer, Ph.D.

Project Title: Treatment of hyperlipidemia by RNA interference.

Project Description: Treatment of hyperlipidemia by RNA interference.

27. **Mirus Corporation** — **Accepting Award:** Hans Herweijer, Ph.D
Type of Award: Phase 1 SBIR — **Federal Agency:** NIH/NCI
Amount: $ 493,482 — **Principal Investigator:** Hans Herweijer, Ph.D.

Project Title: Development of methods for genetic immunization with tumor antigens

Project Description: Development of methods for genetic immunization with tumor antigens

28. **Mirus Corporation** — **Accepting Award:** Hans Herweijer, Ph.D
Type of Award: Phase 1 ATP — **Federal Agency:** NIST
Amount: $ 2,000,000 — **Principal Investigator:** David L. Lewis, Ph.D.

Project Title: Development of methods for drug target validation using RNA interference

Project Description: Development of methods for drug target validation using RNA interference

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29. **NimbleGen Systems, Inc.** **Accepting Award:** Dr. Thomas Albert, Senior Scientist
Type of Award: Phase 1 SBIR **Federal Agency:** NIH
Amount: $ 99,050 **Principal Investigator:** Dr. Thomas Albert

Project Title: Development of a Genotyping Assay Using MAS Technology

Project Description: The development of a genetic test that can quickly screen an individual for genetic disorders that may cause or be linked to genetic diseases. This test should be able to screen large numbers of genetic variations more quickly and inexpensively than existing technologies. This technology will be useful for both researchers studying the genetic causes of disease, and physicians diagnosing genetic disorders in patients.

30. **nPoint, Inc.** **Accepting Award:** Katerina Moloni, VP Marketing
Type of Award: Phase 1 SBIR **Federal Agency:** DOD-MDA
Amount: $ 69,782 **Principal Investigator:** Dr. Katerina Moloni

Project Title: Fast Compact Nanopositioner Based on MEMS Flexures and a Novel Actuator Design

Project Description: Our goal is to creat miniature nanopositioners and scanners that have tens to hundrends of micrometers range of motion. This nanopositioners are batch-fabricated using MEMS techniques, they are a few milimeters in size and they are light-weight.
They address a variety of applications that the large, currently available nanopositioners fail to satisfy due to their size. Such applications are in the areas of semiconductor metrology, microscopy and biotechnology.

31. **Orbital Technologies Corporation** **Accepting Award:** Dr. Eric E. Rice, President & CEO
Type of Award: Phase 2 SBIR **Federal Agency:** US Army Aviation and Missile Command
Amount: $ 730,000 **Principal Investigator:** Dr. Martin Chiaverini

Project Title: Mixing and Combustion of Gelled Propellants

Project Description: ORBITEC is developing a model and conduction testing for the mixing and combustion of gel propellants in the rocket combustion chamber flow field generated by innovative vortex injection schemes. The near-term goal of this work is to provide for, extend, and optimize, the use of gel propellants in combustion devices such as rocket engines and air-breathing propulsion systems.

32. **Orbital Technologies Corporation** **Accepting Award:** Dr. Eric E. Rice, President & CEO
Type of Award: Phase 1 SBIR **Federal Agency:** NASA/JSC
Amount: $ 70,000 **Principal Investigator:** Col. Mark Lee

Project Title: Virtual Collaborative Training & Operations Simulation System

Project Description: VCTOSS is the application of three dimensional (3D), annotated and interactive graphics combined with procedural information and linked data that can be accessed and used simultaneously by multiple parties over small bandwidth communications and with small file sizes. Applications include astronaut crew training, advance field service support systems, training systems for industry and universities, virtual education systems, and advanced collaborative customer service systems.

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33. **Orbital Technologies Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 70,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/KSC
Principal Investigator: Peter Kostka

Project Title: Advanced Humidity Control for Small Volumes

Project Description: ORBITEC is developing a new approach to bi-directional humidity control with the potential for providing a low-cost highly reliable miniature humidity control system with no moving parts. HUMSV is ideally suited to space-borne science where size and weight are crucial to successful hardware design. Other applications of HUMSV include use of inside sensors where moisture affects results, including food storage, museum exhibits and possibly high-performance sportswear.

34. **Orbital Technologies Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 70,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/KSC
Principal Investigator: Jeff Iverson

Project Title: Integrated Plant/Animal Habitat

Project Description: The purpose of the Integrated Plant/Animal Habitat (IPAH) development is to provide a space-based environmental ecosystem for plants and animals where atmospheric exchanges can be monitored and controlled among separate chambers. Specific commercial spin-offs possible include: auto-water system for lab habitats, visible/IR LED lighting systems for animals, ground-based IPAH research systems, outreach and educational animal/plant habitats, small air filtration system for home/lab habitats, closed bioregenerative ecosystems for gene and chemical studies on the environment.

35. **Orbital Technologies Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 70,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/ARC
Principal Investigator: Jay Maas

Project Title: Circulating, Aeration and Nutrient Delivery System

Project Description: The CANDS R&D effort involves the development, construction and test of procedures to control water and oxygen in the root zone of particulate-based microgravity delivery systems. Commercial applications of this technology could include inexpensive, root modules that would be used to control oxygen levels, allowing more precise control of the root zone environment, for commercial chambers and specific nursery support systems.

36. **Orbital Technologies Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 70,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/KSC
Principal Investigator: Robert Gustafson

Project Title: Lunar Regolith Processing System

Project Description: The lunar regolith processing system (LRPS) will be developed to produce oxygen and a variety of other useful materials to support future lunar and Mars exploration activities. The LRPS products would be used for life support, propellant applications, silicon solar cells, iron electric wire or metal parts and other infrastructure development (e.g. ceramics/bricks, fibers for composites, etc.).

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37. **Orbital Technologies Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 70,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/GRC
Principal Investigator: Christopher St.Clair

Project Title: Solid Hydrogen Particle Propulsion

Project Description: ORBITEC proposes to develop a new class of high-performance rocket engine fuels consisting of solid hydrogen particles in a liquid helium carrier fluid. These particles would be ideal carriers for various high-energy density materials, including high-energy metals or atomic free radicals. Development of particle hydrogen technology will play a vital role in the development of environmentally clean, high-energy density propellants for future aerospace vehicles.

38. **Orbital Technologies Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 70,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/SSC
Principal Investigator: Daniel Gramer

Project Title: Cryogenic Flow Sensor for Densified and Two Phase Flows

Project Description: The Cryometer is a unique non-intrusive system that offers highly accurate density, quality, velocity, and mass flow measurements of two-phase and densified cryogenic flows. An accurate two-phase cryogenic flowmeter has been highly sought after by the aerospace industry for decades. There is a fundamental need for accurate measurement of densified and two-phase cryogenic flows for both ground based, space, and In Situ Resource Utilization (ISRU) applications.

39. **Orbital Technologies Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 70,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/MSFC
Principal Investigator: William Knuth

Project Title: Vortex Universal Stoichiometric Preburner (VUSP) for Liquid Rocket Engines

Project Description: The VUSP can be applied as a gas generator on liquid rocket or on a combined cycle engine. The stoichiometric preburner, fitted with the appropriate downstream mixers, produces either or both fuel-rich or oxidizer-rich gas for turbine drive or tank pressurization and uses a unique vortex combustion that prevents combustion products from contacting the wall thus, keeping it cool. The results of this effort will have direct applications to low-cost commercial rocket propulsion systems using gas generator and staged combustion engine cycles that require fuel-rich, and/or oxygen-rich gas generators.

40. **Orbital Technologies Corporation**
Type of Award: Phase 2 SBIR
Amount: $ 600,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/GRC
Principal Investigator: Dr. Martin Chiaverini

Project Title: Gelled LH2/UFAL/LOX Propellant System

Project Description: ORBITEC proposes to use ultra-fine aluminum powder (UFAL) to develop a gelled LH2 fuel and LOX propellant system. This innovation will increase the performance and density of LH2/LOX propellants and the combustion efficiency of LH2/A1/LOX for use in rockets and combined-cycle vehicles. The use UFAL (ultra-fine aluminum powder) in gelled LH2 can have a significant impact on launch vehicle technology, orbit transfer vehicles, planetary missions, military interceptor applications, and combined-cycle engine performance.

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41. **Orbital Technologies Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 99,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: DARPA/US Army
Principal Investigator: Christopher St.Clair

Project Title: Stoichiometric Cold-Wall Rocket Engine

Project Description: ORBITEC is developing a small hydrogen/oxygen rocket engine capable of repeated, sustained operation at stoichiometric conditions. Which is made possible by utilizing ORBITEC's unique vortex combustion cold-wall technique. This technology could ultimately be a central component of an efficient in-space propulsion system using water as a base propellant source for orbital maneuvers of satellites and the International Space Station.

42. **Orbital Technologies Corporation**
Type of Award: Phase 2 SBIR
Amount: $ 600,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/ARC
Principal Investigator: Jay Maas

Project Title: Circulating, Aeration and Nutrient Delivery System

Project Description: The CANDS R&D effort involves the development, construction and test of procedures to control water and oxygen in the root zone of particulate-based microgravity delivery systems. Commercial applications of this technology could include inexpensive, root modules that would be used to control oxygen levels, allowing more precise control of the root zone environment, for commercial chambers and specific nursery support systems.

43. **Orbital Technologies Corporation**
Type of Award: Phase 2 SBIR
Amount: $ 600,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: NASA/JSC
Principal Investigator: Col. Mark Lee

Project Title: Virtual Collaborative Training & Operations Simulation System

Project Description: VCTOSS is the application of three dimensional (3D), annotated and interactive graphics combined with procedural information and linked data that can be accessed and used simultaneously by multiple parties over small bandwidth communications and with small file sizes. Applications include astronaut crew training, advance field service support systems, training systems for industry and universities, virtual education systems, and advanced collaborative customer service systems.

44. **Orbital Technologies Corporation**
Type of Award: Phase 1 Subcontract
Amount: $ 75,000
Accepting Award: Dr. Eric E. Rice, President & CEO
Federal Agency: DARPA - Pioneer Rocketplane
Principal Investigator: William Knuth

Project Title: Analysis and Preliminary Design of LOX/Kerosene Vortex Combustion Cold-Wall Rocket Engine for Propul

Project Description: ORBITEC developed designs for main propulsion rocket engines for the Pioneer Rocketplane RASCAL vehicle concept. ORBITEC's engines use RP-1/LOX in a vortex cold-wall combustion configuration. This technology can also be used for the Rocketplane XP vehicle for space tourism.

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45. **PanVera**
Type of Award: Phase 2 SBIR
Amount: $ 387,651
Accepting Award: Thomas Burke,
Federal Agency: NIH
Principal Investigator: Thomas Burke

Project Title: Selective Inhibition of EGF Receptor Tyrosine Kinase

Project Description: A fluorescence polarization competitive immunoassay was used quantitatively to compare substrate specificities of a wild-type kinase (EGFR) to an oncogenic mutant. Data suggested that C-terminal sequences of EGFR may participate in determining substrate specificity. Results are further described in a JBC publication currently in press.

46. **PanVera**
Type of Award: Phase 1 SBIR
Amount: $ 150,331
Accepting Award: Kurt Vogel,
Federal Agency: NIH
Principal Investigator: Kurt Vogel

Project Title: Fluorescent HTS Assay for Histidine Tagged Proteins

Project Description: This was a method to quantitate proteins used in drug discovery work. This method was substantially faster, easier, and more sensitive than previously described methods.

47. **PanVera**
Type of Award: Phase 2 SBIR
Amount: $ 456,056
Accepting Award: William Checovich, VP Manufacturing
Federal Agency: NIH
Principal Investigator: Robert Lowery

Project Title: HTS Assays for Selective Steroid Receptor Modulators

Project Description: Steroid hormones comprise an important class of signaling molecules that regulate sexual development, bone density, cognition, cardiovascular function, and metabolism. The selective modulation of steroid hormone receptors in specific tissues has tremendous therapeutic potential for a wide range of cancers, metabolic diseases, and developmental disorders. To accelerate drug discovery, PanVera is developing fluorescence-based high throughput screening assays for identifying novel steroid hormone receptor ligands and for predicting their in vivo activity.

48. **PercipEnz Technologies, Inc.**
Type of Award: Phase 1 SBIR
Amount: $ 98,454
Accepting Award: Anthony B. O'Hare, Chief Technology Officer
Federal Agency: NATIONAL CANCER INSTITUTE
Principal Investigator: Anthony B. O'Hare

Project Title: Technology for Managing Cancer Clinical Trials

Project Description: The objective of this work is to develop an innovative, highly secure, Internet-based technology for managing clinical trials in cancer research. Key capabilities include protocol tracking, protocol management, patient registration and basic monitoring of study specific data; all web accessible throughout a distributed organization. The primary innovation is a focus on processes within a cancer center and the repurposing of proprietary security technology. Benefits include addressing strict new regulatory requirements, improving the accessibility, quality and timeliness of data, and supporting the increasingly distributed and community based nature of clinical trials.

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49. **PhysioGenix, Inc.** **Accepting Award:** Steven H. Nye, Ph.D., Director of Research
Type of Award: Phase 1 SBIR **Federal Agency:** NIH
Amount: $ 100,000 **Principal Investigator:** Steven H. Nye, Ph.D.

Project Title: Combinatorial Rat Panels for Pharmacogenetic Effects

Project Description: The PharmaGenix Panel is a new product designed to be used by the pharmaceutical industry for toxicology testing. The PharmaGenix Panel is comprised of a series of rats that are bred in combinations such that both the general and genetic effects of toxic drug effects can be determined. By completing the aims of this grant, we have now shown that the PharmaGenix rats improve on the animal models commonly used by pharmaceutical companies to detect adverse effects of their drug compounds. As such, PhysioGenix expects the PharmaGenix Panel to greatly impact pre-clinical drug development processes in the pharmaceutical industry.

50. **PhysioGenix, Inc.** **Accepting Award:** Steven H. Nye, Ph.D., Director of Research
Type of Award: Phase 1 SBIR **Federal Agency:** NIH
Amount: $ 246,421 **Principal Investigator:** Steven H. Nye, Ph.D.

Project Title: Designer Rat Models that Mimic Type 2 Diabetes

Project Description: The goal of this 2-year project is to use computer software in conjunction with gene mapping in order to predict rat strains that will model a human clinical condition, like type 2 diabetes. With this funding, PhysioGenix is creating sophisticated software programs for selecting new rat strains that will be tested for diabetes. Ultimately, we will use this information to breed new "designer" rats that will more closely resemble various aspects of human type 2 diabetes. These rats will become a proprietary product that PhysioGenix will market to academic and industrial researchers interested in finding new medications for treating type 2 diabetes in humans.

51. **Platypus Technologies, LLC** **Accepting Award:** Dr. Barbara A. Israel, COO
Type of Award: Phase 1 SBIR **Federal Agency:** USDA
Amount: $ 98,041 **Principal Investigator:** Barbara A. Israel

Project Title: Detection of FMDV by Anchoring Transitions of Liquid Crystals

Project Description:
The grant investigates the application of a novel technology based on nanostructured surfaces combined with liquid crystals to rapidly detect the presence of foot-and -mouth disease virus. The assay could be used on farms where suspect cases are present.

52. **Platypus Technologies, LLC** **Accepting Award:** Dr. Barbara A. Israel, COO
Type of Award: Phase 1 SBIR **Federal Agency:** NIH /NCI
Amount: $ 288,616 **Principal Investigator:** Barbara A. Israel

Project Title: Optimization of Obliquely Deposited Substrates for detection of Ras

Project Description: This project advances the use of obliquely deposited gold substrates as the basis for a rapid detection of total and activated cell signaling molecules such as Ras.

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53. **Platypus Technologies, LLC**
Type of Award: Phase 1 SBIR
Amount: $ 287,844
Accepting Award: Dr. Barbara A. Israel, COO
Federal Agency: NIH / NIAIDS
Principal Investigator: Barbara A. Israel

Project Title: Biophotonics for Detection of West Nile Virus

Project Description: This project develops a rapid assay for use in laboratories and in the field to detect the presence of West Nile viurs in mosquitoes and birds, horses and other animals.

54. **Platypus Technologies, LLC**
Type of Award: Phase 1 SBIR
Amount: $ 247,591
Accepting Award: Dr. Barbara A. Israel, COO
Federal Agency: NIH/ NIAIDS
Principal Investigator: Barbara A. Israel

Project Title: Biophotonic Detection of WNV Antibodies for multiple species.

Project Description: This research will lead to the development of an assay to detect the presence of antibodies to the West Nile virus. This product will be useful in monitoring the spread of the disease in the avian, animal and human populations.

55. **Platypus Technologies, LLC**
Type of Award: Phase 1 SBIR
Amount: $ 195,875
Accepting Award: Dr. Barbara A. Israel, COO
Federal Agency: NIH/ NIEHS
Principal Investigator: Barbara a. Israel

Project Title: Personal dosimeter for OP's using Nanostructured Surfaces

Project Description: This project is to develop a small, inexpensive, wearable monitor for the measurement of low-dose cummulative exposure to organophosphate pesticides. This will be important in determining the exposure of children, particularly in rural areas to pesticides and in establishing a link between exposure and health effects.

56. **Platypus Technologies, LLC**
Type of Award: Phase 1 Other Federa R&D
Amount: $ 781,240
Accepting Award: Dr. Barbara A. Israel, COO
Federal Agency: DOD/USAMRIID
Principal Investigator: Barbara A. Israel

Project Title: Rapid Biophotonic Detection of Yersinia Pestis F1 Antigen By Using Liquid Crystals and Nanostructure

Project Description: This project is to develop a rapid diagnostic for plague. The assay is to be formatted for use in low technology environments.

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57. **PowderJect Vaccines, Inc.** **Accepting Award:** Deborah Fuller, Ph.D., Lead Scientist
Type of Award: Phase 1 Other Federa R&D **Federal Agency:** National Institute of Allergy and Infectious Disea
Amount: $ 905,000 **Principal Investigator:** Joel R. Haynes, Ph.D.

Project Title: Adjuvanted DNA Vaccine for Immunotherapy of HIV Infection

Project Description: HIV infection is currently controlled by anti-retroviral drugs. However, the long-term benefit of drugs is limited by the emergence of drug resistant strains and toxicity. The next frontier in the clinical management of HIV infection is immunotherapy. Immunization of infected individuals with vaccines that induce immune responses against the virus may improve control of the infection and prevent disease. We have proposed to develop a novel immunotherapeutic HIV vaccine that restores immune function in HIV-infected individuals and delays or prevents AIDS.

58. **Prairie Technologies, Inc.** **Accepting Award:** Michael Szulczewski, President
Type of Award: Phase 1 SBIR **Federal Agency:** NIH
Amount: $ 146,067 **Principal Investigator:** Michael Szulczewski

Project Title: Simultaneous Near-Field and Confocal Imaging

Project Description: A microscopy technique for recording cellular signaling events of brain cells.

59. **Prairie Technologies, Inc.** **Accepting Award:** Michael Szulczewski, President
Type of Award: Phase 1 SBIR **Federal Agency:** NIH
Amount: $ 140,051 **Principal Investigator:** Michael Szulczewski

Project Title: Integrated Twin Epi-Fluorescence System

Project Description: A microscopy technique for optically stimulating cellular signaling events of brain cells.

60. **Prairie Technologies, Inc.** **Accepting Award:** Michael Szulczewski, President
Type of Award: Phase 1 SBIR **Federal Agency:** NIH
Amount: $ 142,251 **Principal Investigator:** Michael Szulczewski

Project Title: The Swept Field Confocal Microscope

Project Description: A confocal optical attachment for improving conventional fluorescent microscopy images.

61. **Prairie Technologies, Inc.** **Accepting Award:** Daniel van der Weide, President
Type of Award: Phase 1 STTR **Federal Agency:** NIH
Amount: $ 213,948 **Principal Investigator:** Daniel van der Weide

Project Title: Noncontact Membrane Protein Probe

Project Description: A non contact electrical recording system for monitoring biological specimens.

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62. **Precision Research, Inc.** **Accepting Award:** Edward Davis, Vice President Operations
Type of Award: Phase 1 SBIR **Federal Agency:** NIH Inst of Gen Med Science
Amount: $ 99,810 **Principal Investigator:** Dr. Neal Sleszynski

Project Title: Detection of Food Borne Pathogens

Project Description: This project demonstrated a new technology for the identification and quantitation of food borne microbs harmful to humans. The technology will be capable of operating using food samples, or using human based samples for diagnostic use.
This technology combines antibody specificity, fluorescent label sensitivity, and the ability to physically separate different species of microbes for recovery and further analysis.

63. **Precision Research, Inc.** **Accepting Award:** Edward Davis, Vice President Operations
Type of Award: Phase 1 SBIR **Federal Agency:** NIH Inst of Allergy & Inf. Disease
Amount: $ 99,407 **Principal Investigator:** Dr. Neal Sleszynski

Project Title: DNA Isolation and Amplification

Project Description: DNA segment preparation and sequencing has become the major thrust for genetic research and molecular biology, diagnostics, and drug development. This project explores a process that can be used to make larger or production sized batches of reagents or drugs. It is also faster than existing methods by speeding up the replication cycles.

64. **Precision Research, Inc.** **Accepting Award:** Edward Davis, Vice President Operations
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Amount: $ 99,407 **Principal Investigator:** Dr. Neal Sleszynski

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65. **ProCertus BioPharm, Inc.** **Accepting Award:** n/a, n/a
Type of Award: Phase 1 SBIR **Federal Agency:** NIH
Amount: $ 96,850 **Principal Investigator:** William Fahl, Ph.D.

Project Title: Topical protector against chemo/radiotherapy

Project Description: ProCertus BioPharm (“The Company”) is an oncology-focused pharmaceutical company whose primary mission is to develop and commercialize innovative pharmaceutical products that protect patients against the side effects of cancer therapy. The Company's lead product,ProDermaCel, protects cancer patients from chemotherapy-induced alopecia (hair loss). DermX, the Company's second product, is being developed to prevent radiotherapy-induced dermatitis.

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66. **Quantum Devices, Inc.**
Type of Award: Phase 1 SBIR
Amount: $ 70,000
Accepting Award: Ronald W. Ignatius, President
Federal Agency: National Aeronautics and Space Administration
Principal Investigator: Ronald W. Ignatius

Project Title: "LEDs as countermeasure for Pituitary/Neuroendocrine effects of space flight".

Project Description: A Light Emitting Diode Array as countermeasure for Pituitary/Neuroendocrine effects of microgravity in long term space missions. We feel what we learn in space, By developing countermeasures for long-term exposure to microgravity and radiation exposure, can lead to tremendous improvements in medical care for patients here on earth. Spaceflight has been shown to impair bone, muscle and cutaneous repair as well as pituitary/neuroendocrine function. The limited information available suggests that delayed healing in microgravity is related to impaired angiogenesis, immune dysfunction and alterations in cell migration.

67. **Quantum Devices, Inc.**
Type of Award: Phase 1 SBIR
Amount: $ 98,995
Accepting Award: Ronald W. Ignatius, President
Federal Agency: US Army Aviation and Missile Command
Principal Investigator: Ronald W. Ignatius

Project Title: "Use of Light Emitting Diodes (LED) in Pathogen Elimination Wound healing and Tissue Regeneration".

Project Description: This will begin work to dramatically enhance biostimulation using this LED-technology with a project focused on rapid healing of retinal laser-injury. There is no doubt that this type biostimulatory enhancement, once demonstrated, can be immediately applied to military applications and will have profound economic implications for the health care industry. With the development of a low cost LED source, this technology will no doubt find its way into rural area medical facilities thereby making the technology readily available to everyone. The world wide commercial implications for this device technology are enormous.

68. **Quantum Devices, Inc.**
Type of Award: Phase 2 SBIR
Amount: $ 600,000
Accepting Award: Ronald W. Ignatius, President
Federal Agency: National Aeronautics and Space Administration
Principal Investigator: Ronald W. Ignatius

Project Title: "LEDs as Countermeasure for Pituitary/Neuroendocrine Effects of Space Flight".

Project Description: What we learn in space, by developing countermeasures for long-term exposure to microgravity and radiation exposure, can lead to tremendous improvements in medical care for patients here on earth. Spaceflight has been shown to impair bone, muscle and cutaneous repair as well as pituitary/neuroendocrine function. The focus of this Phase I was to determine if Light-Emitting Diode (LED) technology used for biostimulatiion can be enhanced to deliver doses of near-infrared (IR) light deep into the brain, at the level of the pituitary gland, to stimulate neuronal processes, including cytochrome c oxidase activity and neuronal regeneration. This may have multiple benefits as countermeasures to neurologic injury from microgravity and radiation in long-term space flight, such as the ability to restore neuroendocrine function.

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69. **Research & Technology Corporation**
Type of Award: Phase 1 SBIR
Amount: $ 66,000
Accepting Award: Dr. Vladimir Brik, President/CEO
Federal Agency: NASA
Principal Investigator: Dr. Vladimir Brick

Project Title: Self-Operating 80K-150K Minature J-T Cryocooler

Project Description: Not vibration accurate temperature control (80K) for crystal-detector integrated with electronic-optical devices utilizing self-operating 80K minature J-T cryo-cooler for NASA, Airforce and missle-target applications.

70. **Research Solutions International, LTD.**
Type of Award: Phase 2 SBIR
Amount: $ 300,000
Accepting Award: Dr. Charles C. Coker, President/CEO
Federal Agency: U.S. Department of Education
Principal Investigator: Dr. Charles C. Coker

Project Title: FACE: A Management Information System for evaluating impact of employment on persons with disabilities.

Project Description: This project is developing an MIS software product that measures the value added to the lives of consumers receiving employment and/or rehabilitation services. It uses a Benefit-Cost research paradigm for the evaluation of the extent to which consumers benefit from various service program elements. The concept of FACE (Fair and Appropriate Community Employment) profiling is used to measure outcomes in the consumers' life space to evaluate effectiveness. Managed care principles assess the efficiency of service provision. Various routines are included to make the FACE MIS user friendly to case managers, program directors, accounting staff, and executive directors. A comprehensive report system is augmented by a user defined report generator that allows access to all data elements of the system. Marketing plans call for an open source SQL software product capable of running on MYSQL or MS SQL depending on the needs of the customer.

71. **Scotch Hill Farm**
Type of Award: Phase 1 SBIR
Amount: $ 68,596
Accepting Award: Dela Ends, Owner
Federal Agency: USDA
Principal Investigator: Tony Ends

Project Title: Increasing Rural Impact and Sustainability of Farmstead Soap Production

Project Description: This project constructed a model farmstead soap-making facility that adds value to milk, helps integrate livestock and crop enterprises, increases farm income and provides economic incentive for sustainable practices. The project is researching and documenting costs, feasibility and market potential with the help of an agricultural economist from UW Madison and the Center for Integrated Agriculture Systems. It also tested a number of market prospects in efforts that quadrupled gross income from hand-milled milk soap production in 2002. This work laid the foundation for duplicating the model with 10 other family farms in a soap-making guild and marketing cooperative under a Phase II grant application.

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72. **Simulation Technology & Applied Research, Inc.**
Type of Award: Phase 2 SBIR
Amount: $ 737,976
Accepting Award: John F. DeFord, Dr.
Federal Agency: DOE
Principal Investigator: John F. DeFord

Project Title: Tau3P-Based Interactive Design Automation Software

Project Description: We are creating software that enables improved design of high-energy particle accelerators that are used to probe the fundamental laws of nature. As part of an integrated virtual prototyping capability linked to the massive computing resources of the Department of Energy, the new software will potentially save 10s to 100s of millions of dollars in development costs for next-generation machines. The software will also benefit the telecommunications and computer industries, enabling more rapid, effective design of a wide variety of high-speed, high-bandwidth products.

73. **SLIL Biomedical Corp.**
Type of Award: Phase 2 SBIR
Amount: $ 1,034,278
Accepting Award: Andrei V. Blokhin, Ph.D., Senior Scientist
Federal Agency: NIH/NIAID
Principal Investigator: Benjamin Frydman

Project Title: Oligoamine-based Chemotherapy of Microsporidia

Project Description: Microsporidia are unique intracellular parasites that cause the disease microsporidiosis, chiefly in immunosuppressed individuals. Microsporidiosis is usually associated with diarrhea and wasting. Of the drugs tested against microsporidial infections, only fumagillin and albendazole show limited efficacy. Additional drugs with activity against microsporidia are clearly needed. During Phase I of this Grant, we synthesized approximately 35 new polyamine derivatives in the search for a useful drug against microsporidia. We selected a compound of particular efficacy for further study in this grant, focusing on the initiation of a clinical trial.

74. **SpectroCon**
Type of Award: Phase 1 SBIR
Amount: $ 100,000
Accepting Award: Nadine Connor, President
Federal Agency: NHLBI
Principal Investigator: Michael Conforti

Project Title: Device for Promoting Survival of Congested Tissue Flaps

Project Description: New technology is needed for the treatment of venous congestion, a serious complication of reconstructive surgery. Currently, live leeches are used, but are psychologically traumatic to patients and their families, and are often ineffective in preventing tissue death. Our goal is to replace the use of leeches with a fully automated, clinically applicable medical device capable of treating venous congestion over an extended time period.

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75. **Stratatech Corporation** — **Accepting Award:** Paul Conrad, Engineering Manager
Type of Award: Phase 1 SBIR — **Federal Agency:** NIH
Amount: $ 101,350 — **Principal Investigator:** Paul B. Conrad

Project Title: Cryopreservation of a Living Human Skin Equivalent

Project Description: The short shelf-life of engineered living tissues contributes to the high cost of these products and limits their use to major medical centers. Stratatech is developing innovative preservation technologies to store living skin tissue in a form that can be frozen for long periods and that remains viable and functional following thawing. This technology promises to increase the availability of engineered tissues to medical practitioners and reduce production costs for tissue engineering companies.

76. **Stratatech Corporation** — **Accepting Award:** Paul Conrad, Engineering Manager
Type of Award: Phase 1 SBIR — **Federal Agency:** NIH
Amount: $ 99,350 — **Principal Investigator:** Paul B. Conrad

Project Title: Development of a Human Intraepithelial Cancer Model

Project Description: Current laboratory models of cancer often utilize isolated cancer cells grown outside of the normal context in which tumors are found. We are developing a model system in which skin cancer cells are grown within the context of adjacent normal skin tissue. This system will permit us to examine the effects of anti-cancer agents on tumor growth within an environment that closely resembles that found in patients with skin cancer. This could lead to the identification of new and more effective drugs that would not be discovered using isolated cancer cells outside of a normal tissue context.

77. **Stratatech Corporation** — **Accepting Award:** Paul Conrad, Engineering Manager
Type of Award: Phase 1 SBIR — **Federal Agency:** NIH
Amount: $ 100,000 — **Principal Investigator:** Allen R. Comer

Project Title: Expression of Angiogenic Growht Factors in Keratinocytes

Project Description: Engineered skin tissue currently lacks blood vessels and the slow growth of blood vessels into the tissue following grafting onto patients can contribute to graft failure. We are developing engineered skin tissue that expresses factors that accelerate the establishement of a blood supply to the tissue. This technology will increase the success of grafting procedures using engineered skin tissue and will reduce the time required to heal wounds following grafting.

78. **The NeuronFarm, LLC** — **Accepting Award:** Ankur Malhotra, COO
Type of Award: Phase 1 SBIR — **Federal Agency:** IES at Department of Education
Amount: $ 75,000 — **Principal Investigator:** Mina C. Johnson

Project Title: Training the Trainers: E-Learning for Literacy Tutors

Project Description: We created dynamic, interactive websites to train literacy volunteers who were working with struggling 1st and 2nd grade readers. We embedded an experiment into our e-course that asked the question, "Do we really learn more from interactivity?"

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79. **Third Wave Technologies, Inc.**
Type of Award: Phase 2 SBIR
Amount: $ 734,950
Accepting Award: ,
Federal Agency: NIH
Principal Investigator: Hon IP

Project Title: A New Method for Direct and Quantitateive RNA Detection

Project Description:

80. **Third Wave Technologies, Inc.**
Type of Award: Phase 1 SBIR
Amount: $ 100,000
Accepting Award: ,
Federal Agency: NIH
Principal Investigator: Robert Kwiatkowski

Project Title: Genetic Profiles for Perioperative Applications

Project Description:

81. **Third Wave Technologies, Inc.**
Type of Award: Phase 1 SBIR
Amount: $ 100,000
Accepting Award: ,
Federal Agency: NIH
Principal Investigator: Marilyn Olson

Project Title: A HTS Gene Expression Assay for Screening Nutraceuticals

Project Description:

82. **Vitae, LLC**
Type of Award: Phase 2 SBIR
Amount: $ 271,000
Accepting Award: David J. Beebe, Manager
Federal Agency: USDA
Principal Investigator: Eric Walters

Project Title: Miniature active media systems for embryo production

Project Description: The project utilizes emerging miniaturization technologies to develop new methods and technologies to evaluate and optimize in vitro production of bovine embryos within the microfluidic devices.

For more information on the Small Business Innovation Research Program (SBIR) visit http://www.sba.gov/sbir/indexsbir-sttr.html

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